United States Patent

Nomura

[15] **3,678,617**

[45] **July 25, 1972**

[54] DEVICE OF WALKING LEGS FOR A TOY ANIMAL

[72] Inventor: **Yoshiro Nomura,** 17-5, 2-chome, Kuramae, Taito-ku, Toyko, Japan

[22] Filed: **Sept. 11, 1969**

[21] Appl. No.: **856,974**

[30] **Foreign Application Priority Data**

Nov. 4, 1968 Japan 43 96190

[52] **U.S. Cl.** ..... **46/149,** 46/247 R

[51] **Int. Cl.** **A63h 11/10**

[58] **Field of Search** 46/123, 149, 150, 245, 247

[56] **References Cited**

UNITED STATES PATENTS

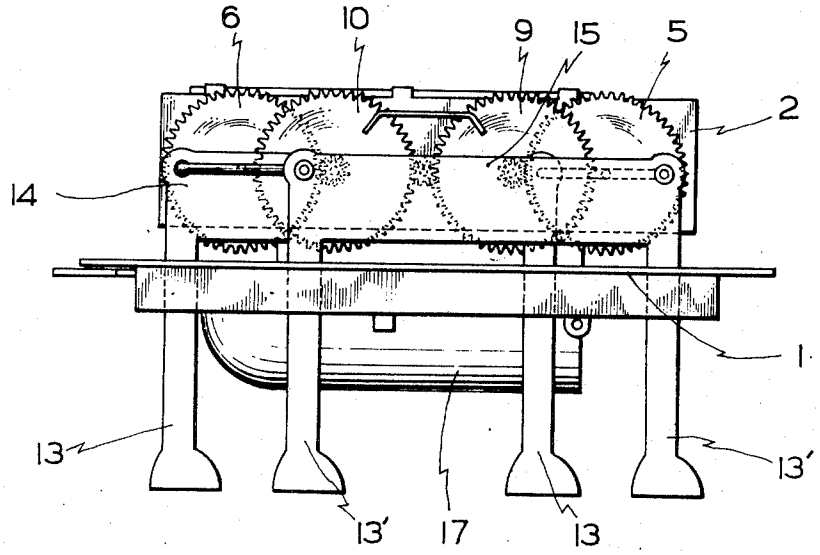
1,707,735	4/1929	Kuen	46/150
3,163,960	1/1965	Iwaya et al.	46/123 X
3,331,463	7/1967	Kramer	46/150 X

Primary Examiner—Louis G. Mancene
Assistant Examiner—Robert F. Cutting
Attorney—Michael S. Striker

[57] **ABSTRACT**

This invention relates to a device of walking legs for a toy animal which walks by eight legs but appears to walk in a regular manner by four legs. This invention comprises a mechanical frame installed in the space consisting of a body supporting frame and a covering frame modeled after an animal, a pair of front and rear rotating axes piercing traversely through said mechanical frame and having a pair of cranks attached to each of both ends of said two rotating axes, respectively, four moving plates having a pair of front and rear legs, respectively, and each said moving plate pivoted on said front and rear cranks and a prime mover transmitting rotation to said rotating axes by means of intermediate transmission gears. When said prime mover is made to start, said rotating axes rotate and then four moving plates move before and behind and up and down so that the toy animal walks by steps as in regular manner.

1 Claim, 4 Drawing Figures



Patented July 25, 1972 3,678,617

2 Sheets-Sheet 1

Fig. 1.

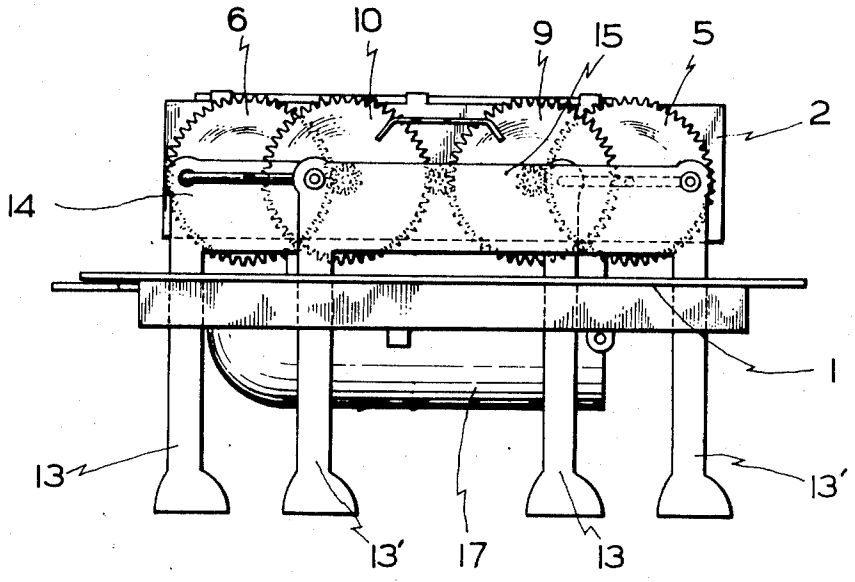
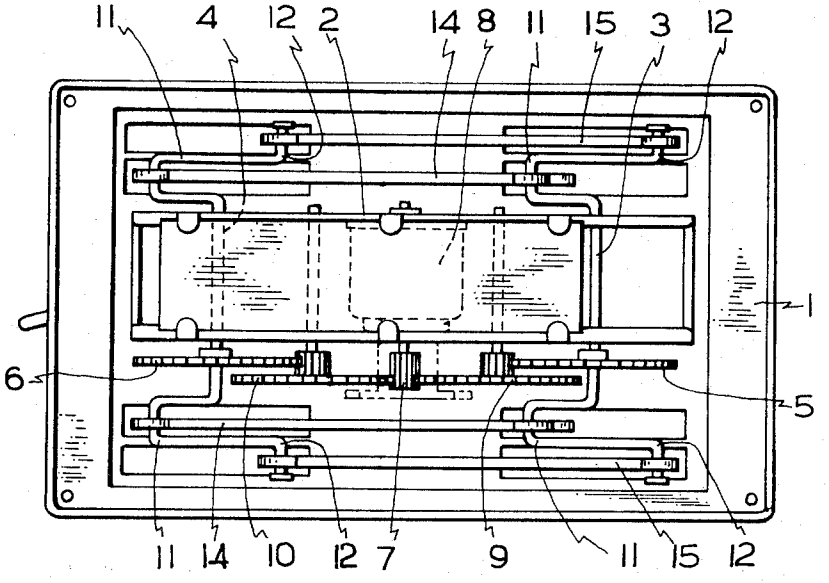


Fig. 2.



INVENTOR
YOSHIRO NOMURA

BY
Michael I. Stein
ATTORNEY

Fig. 3.

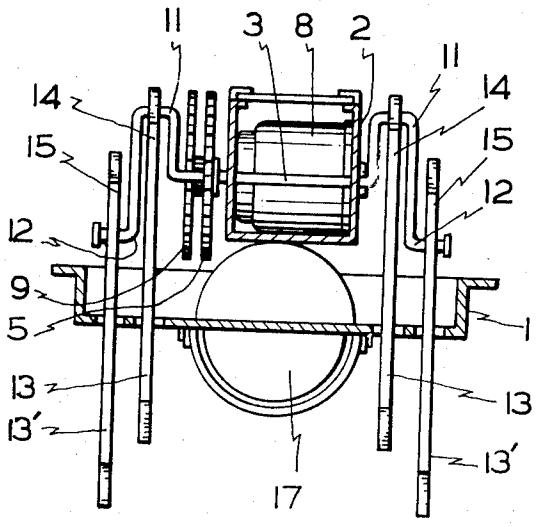
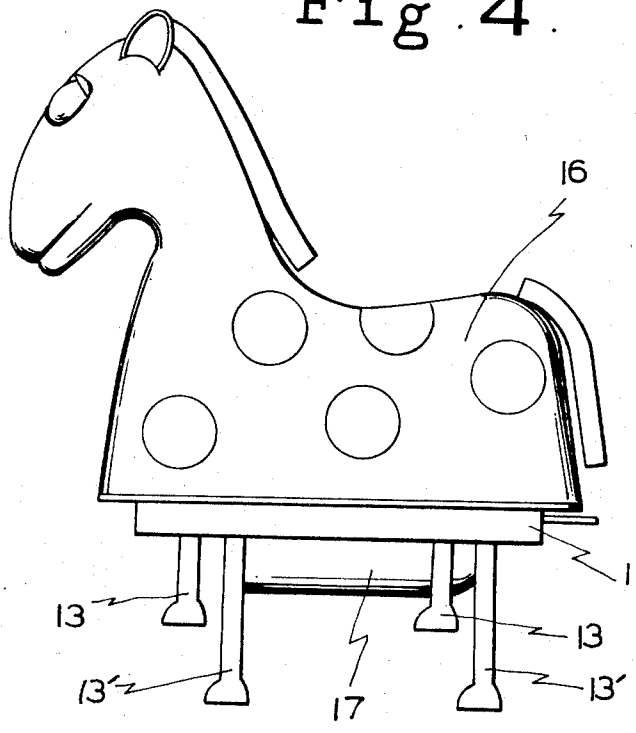


Fig. 4.



INVENTOR
YOSHIRO NOMURA

BY

ATTORNEY

DEVICE OF WALKING LEGS FOR A TOY ANIMAL

BACKGROUND OF THE INVENTION

DESCRIPTION OF THE PRIOR ART

Heretofore, the moving toy animal was not a walking toy but a sliding or running toy which has wheels similar to a toy car, therefore it does not seem to walk.

SUMMARY OF THE INVENTION

This invention is to provide a practically walking toy animal instead of a sliding or running toy animal and to give dynamic interest to children.

This invention relates to A device of walking legs for a toy animal which comprises a mechanical frame, a pair of front and rear rotating axes piercing transversely through said mechanical frame, four pair of cranks attached to each of both ends of said two rotating axes, four moving plates pivoted on said front and rear cranks respectively, four pair of front and rear legs fixed to each said moving plate and a prime mover transmitting rotation to said rotating axes by means of intermediate transmission gears.

When said prime mover is made to start, a pair of cranks attached to said rotating axes may revolve round said rotating axes as a center by means of said transmission mechanism, accordingly said moving plates pivoted on said cranks are made to move before and behind and up and down and then a toy animal may walk by legs.

BRIEF EXPLANATION OF THE DRAWING

This invention will be better understood and the object and the additional advantage of the invention will become apparent upon perusal of the following description taken in connection with the drawing, in which:

Drawings show an embodiment of this invention and

FIG. **1** is a side elevation view thereof;

FIG. **2** is a plan view thereof;

FIg. **3** is a front elevation view thereof showing a state which is a case when cranks are made to revolve by the angle of 90° from a state of FIG. **1** ; and

FIG. **4** is a side elevation view of a toy animal embodied by this invention.

A PERFECT EMBODIMENT OF THE INVENTION

This description will be understood to be illustrative of the invention and not limiting to the particular construction shown and described.

Referring to the preferred form of the invention shown in FIGS. **1** to **4**, inclusively, there is illustrated a mechanical frame **2** installing in the space consisting of a body supporting frame **1** and a covering frame **16**. Front and rear rotating axes **3** and **4** are made to pierce transversely through the front and rear portions of said mechanical frame **2**, respectively, and are attached with front and rear gears **5** and **6**, respectively, which have an equal diameter and the same tooth member. Said gears **5** and **6** are in mesh with intermediate transmission gears **9** and **10**, respectively, which engage a gear **7** of a prime mover **8**. Therefore when said prime mover **8** is made to rotate, said rotating axes **3** and **4** also rotate with an equal velocity and in the same direction. Said two rotating axes **3** and **4** are fitted with a pair of an inner crank **11** and an outer crank **12** at both ends of them, respectively. Each pair of said

cranks **11** and **12** are formed from bending perpendicularly and next folding back both extensions of said axes **3** and **4**. Both extremities of said cranks **11** and **12** are positioned at an equal distance from said axis **3** or **4**, and each pair of said cranks **11** and **12** has a difference of the angle of 180° between them and four pairs of them are always positioned in the same condition in respect of said axes **3** and **4**. Two inner moving plates **14** and **14** at the both sides are pivoted at the extremities of said front and rear inner cranks **11** and **11** at the same side, respectively, with front and rear corners of the upper portion of said inner moving plates **14** and **14**, respectively and two outer moving plates **15** and **15** at the both sides are pivoted at the extremities of said front and rear outer cranks **12** and **12** at the same side, respectively, with front and rear corners of the upper portion of said outer moving plates **15** and **15**, respectively. Also, the bottom portion of said supporting frame **1** becomes a cell-box **17**. Therefore when the rotating axes **3** and **4** are made to rotate, the cranks **11** and **12** also revolve as a pair round the axis **3** or **4**, respectively, and accordingly the inner and outer plates **14** and **15** move horizontally before and behind and up and down alternately. Each of said moving plates **14** and **15** is fitted with front and rear inner legs **13** and front and rear outer legs **13'** at the front and rear portions of said moving plates **14** and **15**, respectively. Therefore, these motions of said moving plates cause said legs **13** and **13'** to walk by steps as if animals go on foot. In this invention, four front legs and four rear legs are visible beneath said supporting frame **1**, but these legs appear to walk by two front legs and two rear legs by side viewing. But, as a matter of fact, this toy animal differs from an ordinary toy animal of four legs in a manner of walking and has an unique and peculiar appearance and gives attractive interest to children by a novel motion of it. While particular embodiment of the invention have been illustrated and described, modification thereof will really occur to those skilled in the art. It should be understood therefore that the invention is not limited to the particular structures disclosed but that the appended claims are intended to cover all modifications which do not depart from the true spirit and scope of the invention.

What is claimed as new and desired to be secured by Letters Patent of the United States is:

1. A device of walking legs for a toy animal comprising a mechanical frame equipped inside the space consisting of a body supporting frame and a covering frame modeled after an animal; a pair of front and rear rotating axes piercing transversely through the front and rear potions of said mechanical frame, respectively; a prime mover transmitting rotation to said rotating axes by means of transmission gear means so that said axes rotate with an equal velocity and in the same direction, said prime mover being set inside said mechanical frame; four pairs of inner and outer cranks fixed at the both ends of said two rotating axes, respectively, each of said pair of cranks being formed from bending perpendicularly and next folding back both extensions of said axes, and both extremities of each pair of said cranks being positioned at an equal distance from said rotating axes and having difference of the angle of 180° in respect of the rotation of said rotating axes, respectively; and two inner moving plates and two outer moving plates being pivoted at the extremities of said inner and outer cranks, respectively, by the front and rear corners of the upper part of each said moving plate and having front and rear legs at the lower part of each said moving plate, respectively.

* * * * *